

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6:  H04R 1/12		A1	(11) International Publication Number: WO 95/05723  (43) International Publication Date: 23 February 1995 (23.02.95)
(21) International Application Number: PCT/EP94/02682  (22) International Filing Date: 11 August 1994 (11.08.94)  (30) Priority Data: 08/108,233 19 August 1993 (19.08.93) US		(81) Designated States: AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, ES, FI, GB, HU, JP, KP, KR, KZ, LK, LU, LV, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SK, UA, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).  Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>	
(71) Applicant: RÖSLER, Uwe [DE/DE]; Uferweg 4, D-82234 Wessling (DE).  (71)/(72) Applicant and Inventor: MATULINA, Tonci [HR/HR]; HR-57295 Silba (HR).  (74) Agent: MÜNICH, RÖSLER, STEINMANN; Wilhelm-Mayr-Strasse 11, D-80689 München (DE).			

(54) Title: HYGIENIC PHONE PAD AND DISPENSER APPARATUS

(57) Abstract

A disposable sanitary pad and associated dispenser for covering portions of a telephone handset to protect a user from contact with those portions. The pads are contained within a dispenser assembly and are attachable to both the mouthpiece and the earpiece of the telephone handset by hook and pile fasteners. The dispenser allows a simultaneous placement of a pair of pads to the handset from an underlying supply of the same and includes a desiccant assembly for maintaining the pads in a dry condition.

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	GB	United Kingdom	MR	Mauritania
AU	Australia	GE	Georgia	MW	Malawi
BB	Barbados	GN	Guinea	NE	Niger
BE	Belgium	GR	Greece	NL	Netherlands
BF	Burkina Faso	HU	Hungary	NO	Norway
BG	Bulgaria	IE	Ireland	NZ	New Zealand
BJ	Benin	IT	Italy	PL	Poland
BR	Brazil	JP	Japan	PT	Portugal
BY	Belarus	KE	Kenya	RO	Romania
CA	Canada	KG	Kyrgyzstan	RU	Russian Federation
CF	Central African Republic	KP	Democratic People's Republic of Korea	SD	Sudan
CG	Congo	KR	Republic of Korea	SE	Sweden
CH	Switzerland	KZ	Kazakhstan	SI	Slovenia
CI	Côte d'Ivoire	L1	Liechtenstein	SK	Slovakia
CM	Cameroon	LK	Sri Lanka	SN	Senegal
CN	China	LU	Luxembourg	TD	Chad
CS	Czechoslovakia	LV	Latvia	TG	Togo
CZ	Czech Republic	MC	Monaco	TJ	Tajikistan
DE	Germany	MD	Republic of Moldova	TT	Trinidad and Tobago
DK	Denmark	MG	Madagascar	UA	Ukraine
ES	Spain	ML	Mali	US	United States of America
FI	Finland	MN	Mongolia	UZ	Uzbekistan
FR	France			VN	Viet Nam
GA	Gabon				

HYGIENIC PHONE PAD AND DISPENSER APPARATUS**Technical Field**

The present invention relates to sanitary covers and more particularly pertains to disposable sanitary pads which may be utilized for covering portions of a telephone handset to protect a user from contact with those portions.

**Prior Art**

The use of sanitary covers is known in the prior art. More specifically, sanitary covers heretofore devised and utilized for the purpose of covering portions of a telephone handset are known to consist basically of familiar, expected and obvious structural configurations, notwithstanding the myriad of designs encompassed by the crowded prior art which have been developed for the fulfillment of countless objectives and requirements.

For example, a sanitary telephone cover is illustrated in U.S. Patent 5,054,063 which includes a disposable sanitary telephone cover attachable to the sound transmitting portions of a telephone for protecting a user from contacting the sound transmitting portions of the telephone and being exposed to bacteria and other contagious and infectious agents carried by the telephone. The telephone cover comprises a disposable sheet including a number of layers of material bonded together which may be attached to a telephone through a use of an adhesive.

-2-

A telephone sanitary cover is described in U.S. Patent 4,546,217 which utilizes an inexpensive, disposable sanitary cover for telephones comprising a sleeve-like member adapted to receive and retain a telephone handset. The invention also includes a generally conformable base-encasing member adapted to encase and seal a telephone base member from direct contact therewith by a user.

Another patent of interest is U.S. Patent 4,852,163 which describes a telephone mouthpiece cover including a single piece of frustocircular paperboard which is formed in such a manner so as to define a cap portion and a skirt portion adapted to fit snugly on standard telephone receivers. The cover is designed to be completely disposable and includes a plurality of annular ribs for reinforcement of the skirt portion.

While these devices fulfill their respective, particular objectives and requirements, the aforementioned patents do not describe a hygienic telephone pad and dispenser apparatus having a plurality of disposable sanitary pads contained within a dispenser assembly and attachable to both the mouthpiece and the earpiece of a telephone handset by hook and pile fasteners. In this respect, the hygienic telephone pad and dispenser apparatus according to the present invention substantially departs from the conventional concepts and designs of the prior art, and in so doing provides an apparatus primarily developed for the purpose of covering portions of a telephone handset to protect a user from contact with those portions.

-3-

### Description of the Invention

In view of the foregoing disadvantages inherent in the known types of sanitary covers now present in the prior art, the present invention provides a new hygienic telephone pad and dispenser apparatus construction wherein the same can be utilized for covering portions of a telephone handset to protect a user from contact with those portions. As such, the general purpose of the present invention, which will be described subsequently in greater detail, is to provide a new hygienic telephone pad and dispenser apparatus which has many of the advantages of the sanitary covers mentioned heretofore and many novel features that result in a hygienic telephone pad and dispenser apparatus which is not anticipated, rendered obvious, suggested, or even implied by any of the prior art sanitary covers, either alone or in any combination thereof.

To attain this, the present invention essentially comprises a disposable sanitary pad and associated dispenser for covering portions of a telephone handset to protect a user from contact with those portions. The pads are contained within a dispenser assembly and are attachable to both the mouthpiece and the earpiece of the telephone handset by hook and pile fasteners. The dispenser allows a simultaneous placement of a pair of pads to the handset from an underlying supply of the same and includes a desiccant assembly for maintaining the pads in a dry condition.

There has thus been outlined, rather broadly, the more important features of the invention in order that the detailed description thereof that follows may be better

-4-

understood, and in order that the present contribution to the art may be better appreciated. There are, of course, additional features of the invention that will be described hereinafter and which will form this subject matter of the claims appended hereto.

In this respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments and of being practiced and carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of description and should not be regarded as limiting.

As such, those skilled in the art will appreciate that the conception, upon which this disclosure is based, may readily be utilized as a basis for the designing of other structures, methods and systems for carrying out the several purposes of the present invention. It is important, therefore, that the claims be regarded as including such equivalent constructions insofar as they do not depart from the spirit and scope of the present invention.

Further, the purpose of the foregoing abstract is to enable the U.S. Patent and Trademark Office and the public generally, and especially the scientists, engineers and practitioners in the art who are not familiar with patent or legal terms or phraseology, to determine quickly from a cursory inspection the nature and essence of the technical

-5-

disclosure of the application. The abstract is neither intended to define the invention of the application, which is measured by the claims, nor is it intended to be limiting as to the scope of the invention in any way.

It is therefore an object of the present invention to provide a new hygienic telephone pad and dispenser apparatus which has many of the advantages of the sanitary covers mentioned heretofore and many novel features that result in a hygienic telephone pad and dispenser apparatus which is not anticipated, rendered obvious, suggested, or even implied by any of the prior art sanitary covers, either alone or in any combination thereof.

It is another object of the present invention to provide a new hygienic telephone pad and dispenser apparatus which may be easily and efficiently manufactured and marketed.

It is a further object of the present invention to provide a new hygienic telephone pad and dispenser apparatus which is of a durable and reliable construction.

An even further object of the present invention is to provide a new hygienic telephone pad and dispenser apparatus which is susceptible of a low cost of manufacture with regard to both materials and labor, and which accordingly is then susceptible of low prices of sale to the consuming public, thereby making such hygienic telephone pad and dispenser apparatuses economically available to the buying public.

Still yet another object of the present invention is to provide a new hygienic telephone pad and dispenser ap-

-6-

paratus which provides in the apparatuses and methods of the prior art some of the advantages thereof, while simultaneously overcoming some of the disadvantages normally associated therewith.

Still another object of the present invention is to provide a new hygienic telephone pad and dispenser apparatus including disposable sanitary pads which may be attached to both the mouthpiece and the earpiece of a telephone handset to protect a user from contact therewith.

Yet another object of the present invention is to provide a new hygienic telephone pad and dispenser apparatus providing disposable sanitary pads which may be selectively secured to a telephone handset by hook and pile fasteners.

Even still another object of the present invention is to provide a new hygienic telephone pad and dispenser apparatus which includes a desiccant assembly for maintaining a plurality of disposable sanitary pads in a dry condition.

These together with other objects of the invention, along with the various features of novelty which characterize the invention, are pointed out with particularity in the claims annexed to and forming a part of this disclosure. For a better understanding of the invention, its operating advantages and the specific objects attained by its uses, reference should be had to the accompanying drawings and descriptive matter in which there is illustrated preferred embodiments of the invention.

-7-

### Brief Description of the Drawings

The invention will be better understood and objects other than those set forth above will become apparent when consideration is given to the following detailed description thereof. Such description makes reference to the annexed drawings wherein:

Figure 1 is a perspective view of a first embodiment of a hygienic telephone pad and dispenser apparatus comprising the present invention.

Figure 2 is a cross sectional view taken along line 2-2 of Figure 1.

Figure 3 is a cross sectional view taken along line 3-3 of Figure 2.

Figure 4 is a cross sectional view taken along line 4-4 of Figure 3.

Figure 5 is an exploded perspective view of the first embodiment of the present invention.

Figure 6 is a side elevation view, partially in cross section, of a second embodiment of a hygienic telephone pad and dispenser apparatus comprising the present invention.

Figure 7 is a cross-sectional view taken along line 7-7 of Figure 6.

### Description of the preferred Embodiments

With reference now to the drawings, and in particular to Figures 1 - 5 thereof, a new hygienic telephone pad and dispenser apparatus embodying the principles and concepts of the present invention and generally designated by the reference numeral 10 will be described.

The hygienic telephone pad and dispenser apparatus 10 comprises an enclosure 12 which supports and encloses a pair of dispenser assemblies 14. Each of the dispenser assemblies 14 contains a supply of disposable hygienic pads 16 which may be individually secured to the sound transmitting portions 17 of a telephone handset 18 through a use of hook and pile fasteners 20 which are located on both the handset and the hygienic pads. The dispenser assemblies 14 are both slidably supported upon a pair of tracks 22, 24 which facilitate an adjustment thereof to accommodate various sizes of telephone handsets. The enclosure 12 is completed with a cover assembly 26 which is operable to fully enclose the dispenser assemblies 14 to substantially shield the same from exterior elements such as rain, wind, dirt and the like.

In use, the hygienic telephone pad and dispenser apparatus 10 may be positioned proximate any telephone, particularly public telephones, to provide a supply of the hygienic pads 16 for application to the handset 18 of the telephone. The device 10 may be operated by releasing the cover assembly 26 to expose the dispenser assemblies 14 within the enclosure 12. The telephone handset 18 may then be placed within the enclosure 12, whereby the sound transmitting portions 17 of the handset engage the dispenser assemblies 14 and the associated hygienic pads

-9-

16 contained therewithin. The hygienic pads 16 are provided with a fastening means, such as either hook and pile fasteners 20 engagable to companion hook and pile fasteners 20 secured to the telephone handset 18 or an adhesive, to facilitate a removable coupling between the two. Upon placement of the telephone handset 18 within the dispenser assemblies 14, the telephone handset may be manipulated in such a manner so as to cause a tearing of the perforations 28, thereby releasing the upper most hygienic pads 16 from the dispenser assemblies.

The hygienic pads 16 are comprised of any substantially sound transparent material which provides an effective barrier between a user and the covered portions of the telephone handset 18 to prevent a transmission of germs, bacteria, and the like therethrough. The hygienic telephone pad and dispenser apparatus 10 provides a convenient means for dispensing such hygienic pads 16 to public telephone users.

More specifically, it will be noted that the hygienic telephone pad and dispenser apparatus 10 comprises an enclosure 12 having a bottom wall 30 from which a pair of spaced, co-planar sidewalls 32, 34 orthogonally project. A rear wall 36 is orthogonally connected to the bottom wall 30, and both of the sidewalls 32, 34, as best illustrated in Figure 2. The sidewalls 32, 34 each include cutout portions 38, such as is shown for sidewall 34 in Figure 1, proximate a top, medial portion thereof which allow for easier manipulation of a telephone handset 18 within the enclosure 12 by a user.

Pivottally connected by a hinge 40 to the enclosure 12 is a cover assembly 26. The cover assembly 26 is comprised of a

-10-

top wall 42 having a substantially similar shape to that of the bottom wall 30 being orthogonally connected to a front wall 44 which has a substantially similar shape as that of the rear wall 36. The cover assembly further includes a pair of fill portions 45, only one of which is shown in Figure 1, which are operable to fit within the cutout portions 38 of the sidewalls 32, 34 when the cover assembly 26 is in a closed position.

The cover assembly 26 is removably secured in a closed position by a release button 46 which projects through a button aperture 48 in the front wall 44 thereof. The release button 46 is contained within a button cavity 50 upon a button spring 52 which biases the release button outwardly therefrom. Upon an actuation of the release button 46 by a user, the cover assembly 26 will be biased into an open position by a torsion spring 54 which is operatively coupled to the hinge 40, as best illustrated in Figure 2.

A pair of tracks 22, 24 are fixedly secured to an interior of the closure 12 upon the bottom wall 30 thereof. The tracks 22, 24 engage and slidably secure a pair of supports 56, 58 in a perpendicular manner with respect to the bottom wall 30, as best illustrated in Figure 3. The supports 56, 58 rotatably support a dispenser assembly 14 upon a pair of unlabeled pivot pins to allow the dispenser assembly to pivot to an appropriate angle such that the hygienic pads 16 contained therein may be positioned flatly against the sound transmitting portion 17 of the telephone handset 18, as best illustrated in Figure 4.

Although the hygienic telephone pad and dispenser apparatus 10 comprises two dispenser assemblies 14, each of

-11-

the dispenser assemblies is substantially similar in shape and therefore only one will be described in detail. Figure 5 shows an exploded view of one of the dispenser assemblies 14 and it can be shown from thin illustration that the dispenser assembly is comprised of a dispenser body 60 having a substantially square shape and including a pair of vertical cylinders 62, 64 integrally formed into a pair of corners thereof. The vertical cylinders 62, 64 each have a guide rod 66, 68 disposed in a concentric manner therewithin. The guide rods 66, 68 are operable to project through apertures 70 in circular ear portions 72 of the hygienic pads 16 to secure a position thereof within the dispenser body 60.

The hygienic pads 16 are supported upon a pad support member 74 within the dispenser body 60. The pad support member 74 is coupled to the dispenser body 60 and supported relative thereto by a plurality of support springs 76, as best illustrated in Figure 4. The hygienic pads 16 are further retained within the dispenser body by a pair of pad retainer assemblies 78, 90 which are rotatably coupled to the dispenser body 60 and are each comprised of a pivot rod 82 having a keeper 84 at a top portion thereof to preclude an accidental removal of the hygienic pads 16.

An access door 86 is pivotally coupled to the dispenser body 60 by a spring loaded hinge 88 which allows access to a vertical side of a stack of the hygienic pads 16 contained therewithin. The access door 86 also allows the telephone handset 18, after being engaged to a hygienic pad 16, to exit outwardly through the access door while simultaneously tearing the perforations 28 of the hygienic pad, thereby freeing the same from a stack of such pads.

-12-

In use, the hygienic telephone pad and dispenser apparatus 10 may either be positioned proximate any telephone, particularly public telephones, or portably carried by the user to provide a supply of the hygienic pads 16 for application to the handset 18 of the telephone. The device 10 may be operated by releasing the cover assembly 26 and placing the telephone handset 18 within the enclosure 12, whereby the sound transmitting portions 17 of the handset engage the dispenser assemblies 14 and the associated hygienic pads 16 contained therewithin. The telephone handset may then be manipulated in such a manner so as to cause a tearing of the perforations 28, thereby releasing the upper most hygienic pads 16 from the dispenser assemblies 14. The hygienic pads 16 may be formed of any substantially sound transparent material, such as a cellophane, cloth, paper and the like, which provides an effective barrier between a user and the covered portions of the telephone handset 18 to prevent a transmission of germs and bacteria therethrough.

A second embodiment of the present invention as generally designated by the reference numeral 90, which comprises substantially all of the features of the foregoing embodiment 10 and which further comprises a desiccant assembly 92 will now be described. As best shown in Figures 6 - 7, it can be shown that the desiccant assembly 92 comprises a cylindrical desiccant body 94 secured to the bottom wall 30 of the enclosure 12 in an area substantially between the dispenser assemblies 14. The desiccant body 94 includes a plurality of air apertures 96 therethrough and a cap 98 removably coupled thereto. Desiccant material 100, such as water absorbing salts, gels, and the like, is contained within an envelope 102 and removably positioned within the desiccant body 94. The

-13-

desiccant assembly 92 is operable to substantially dehydrate the air within the enclosure 12, thereby maintaining the pads 16 in a dry condition.

As to a further discussion of the manner of usage and operation of the present invention, the same should be apparent from the above description. Accordingly, no further discussion relating to the manner of usage and operation will be provided.

In summary, the hygienic telephone pad and dispenser apparatus provides a convenient way for a user to cover portions of a public telephone to protect the user from contact with those portions and being exposed to bacteria and other contagious or infectious agents present thereon. The apparatus may be securely mounted to public telephone booths so that all users of the public telephone may enjoy these benefits.

With respect to the above description then, it is to be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention.

Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown

-14-

and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

-15-

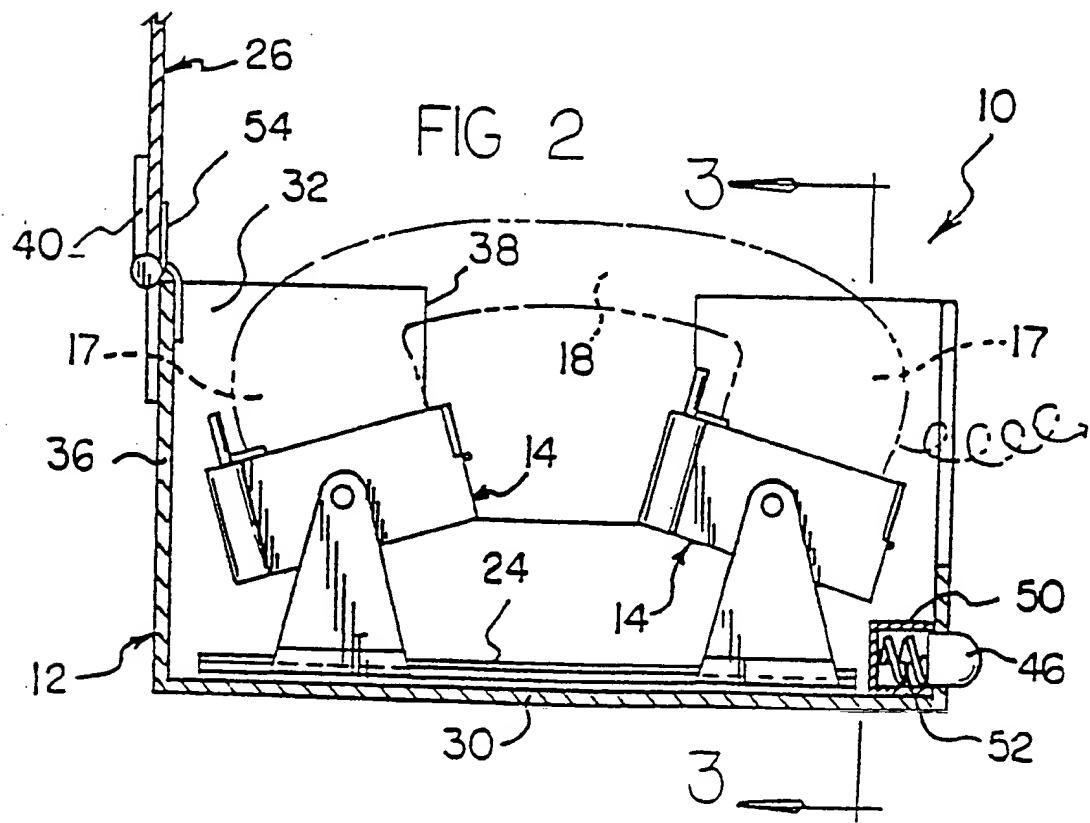
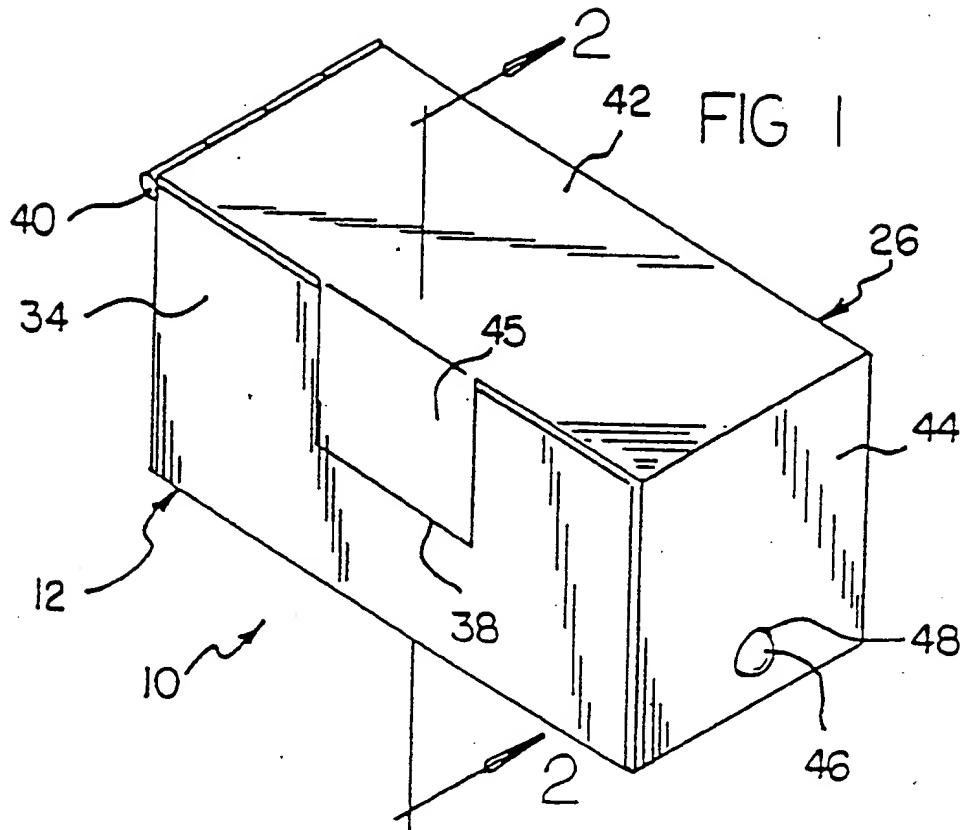
CLAIMS

1. A new hygienic telephone pad and dispenser apparatus for use with a telephone handset, said apparatus comprising:  
at least one hygienic pad comprising at least one ear portion, said at least one ear portion having an aperture therethrough, said at least one ear portion further having perforations facilitating a separation thereof, and a fastening means coupled to said pad;  
at least one dispenser assembly for receiving and supporting said at least one hygienic pad, said at least one dispenser assembly including at least one guide rod positionable within said aperture of said at least one ear portion;  
wherein said at least one hygienic pad may be removably coupled to a portion of said telephone handset and separated from said dispenser by a fracturing of said perforations.
2. The new hygienic telephone pad and dispenser apparatus of Claim 1, wherein said fastening means comprises an adhesive.
3. The new hygienic telephone pad and dispenser apparatus of Claim 1, wherein said fastening means comprises hook and pile fasteners engagable to companion hook and pile fasteners of said telephone handset.
4. The new hygienic telephone pad and dispenser apparatus of Claim 3, wherein said at least one dispenser assembly comprises a plurality of dispenser assemblies.

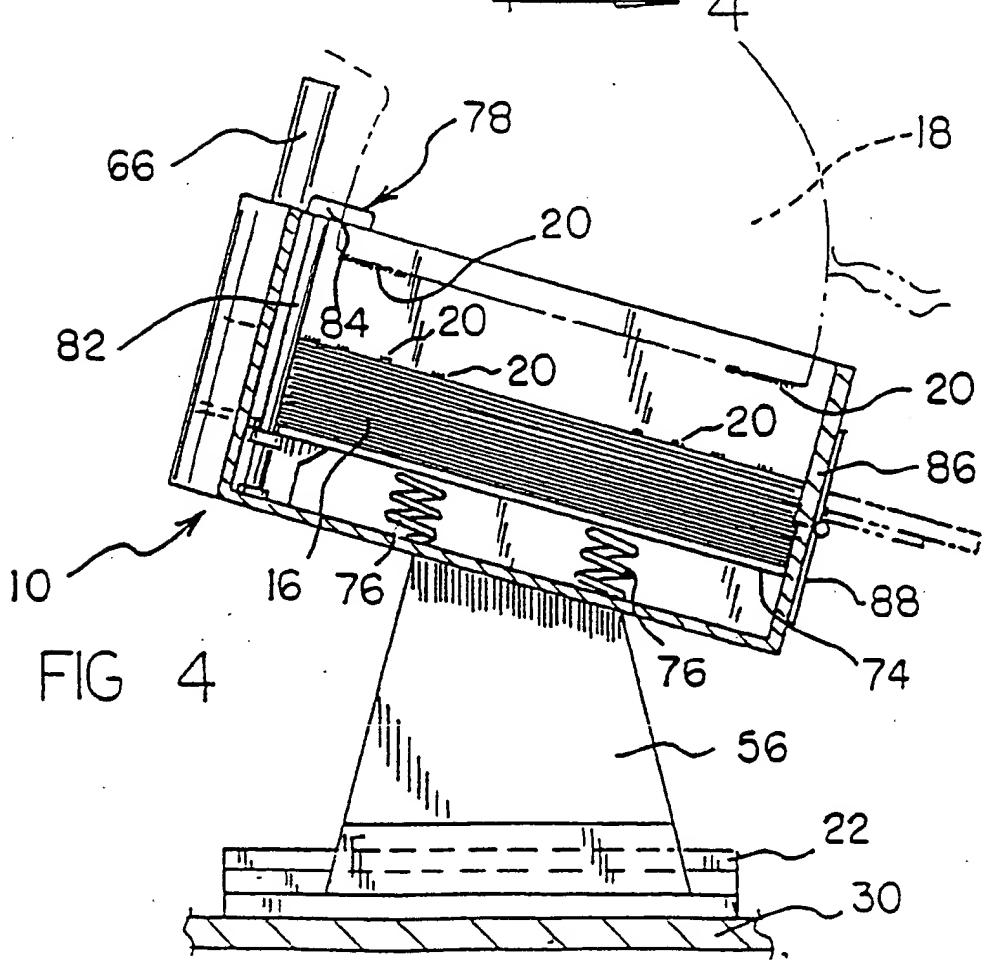
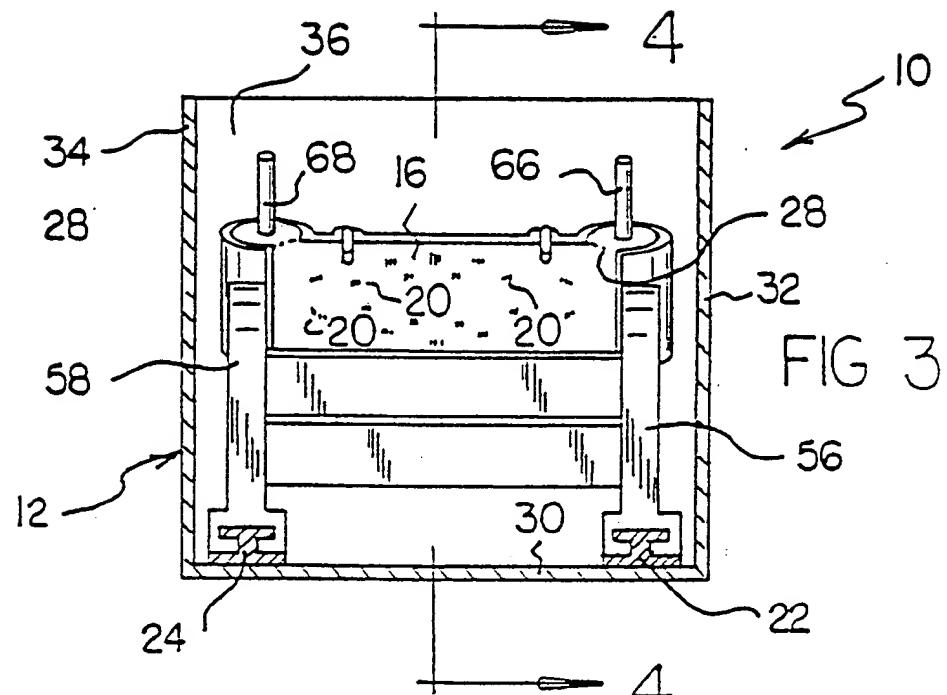
-16-

5. The new hygienic telephone pad and dispenser apparatus of Claim 4, wherein said dispenser assemblies are each pivotally supported upon a pair of support members.
6. The new hygienic telephone pad and dispenser apparatus of Claim 5, and further comprising an enclosure for containing said dispenser assemblies, said enclosure being substantially air tight and comprising a cover pivotally coupled thereto and operable to allow access into said enclosure.
7. The new hygienic telephone pad and dispenser apparatus of Claim 6, and further comprising a desiccant assembly having a desiccant material therein for dehumidifying air contained within said enclosure.

1/4



2/4



3/4

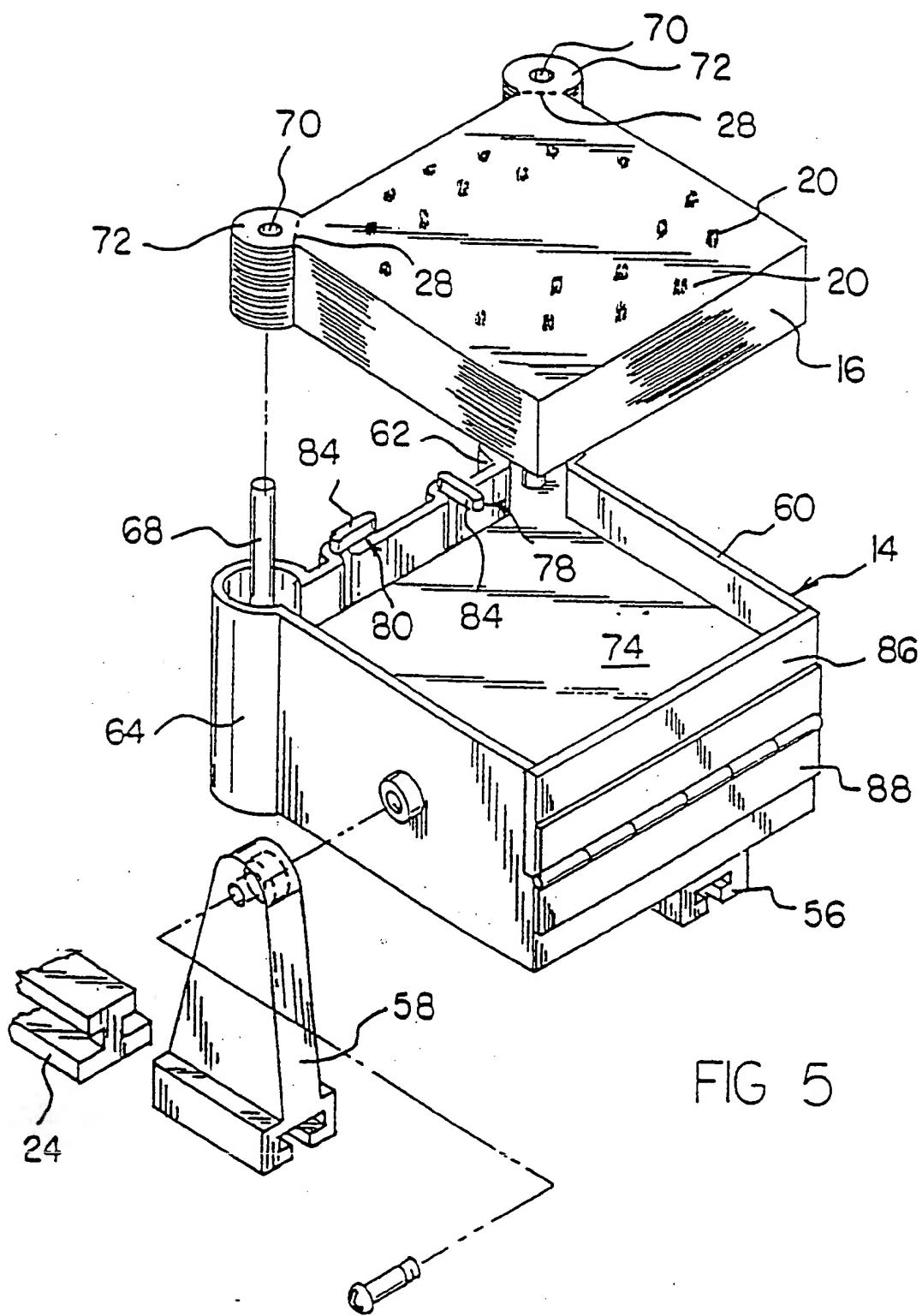
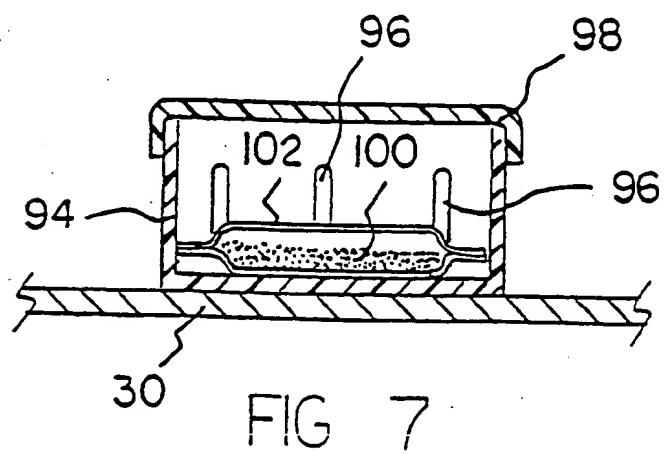
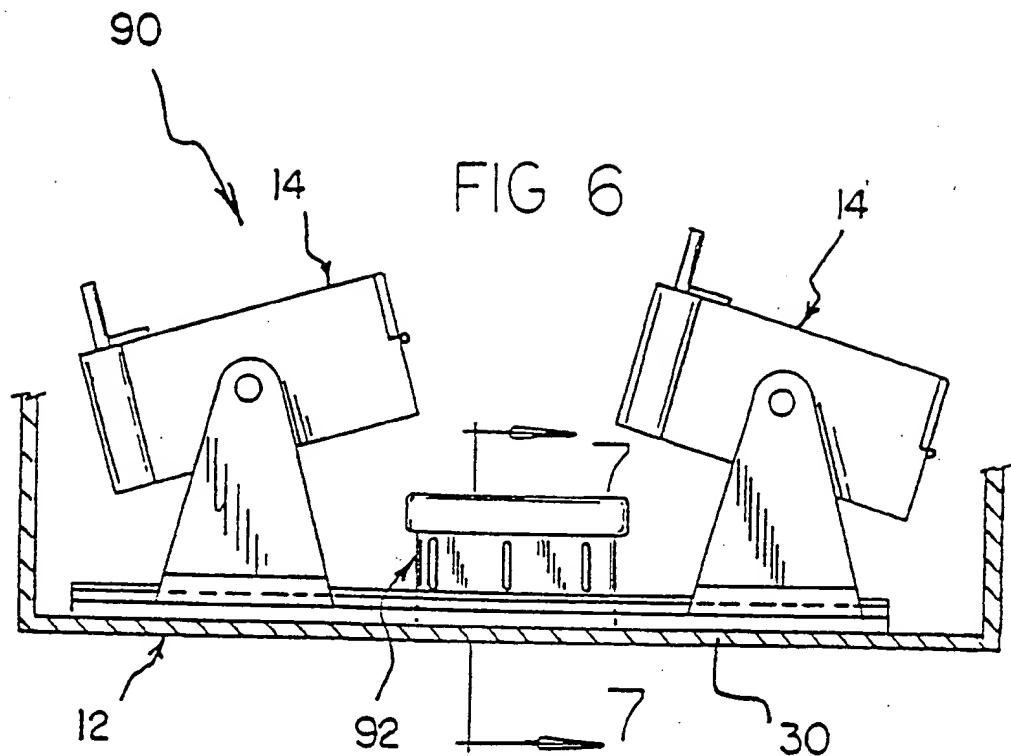


FIG 5

4/4



## INT'L NATIONAL SEARCH REPORT

Document Application No.  
PCT/EP 94/02682

## A. CLASSIFICATION OF SUBJECT MATTER

H 04 R 1/12

According to International Patent Classification (IPC) or to both national classification and IPC 6

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

H 04 M 1/00, H 04 R 1/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US, A, 4 876 715 . (D.F. NEUBERT) 24 October 1989 (24.10.89), the whole document. --	1, 2, 3, 4, 5
A	FR, A, 2 589 304 (SACRESTE) 18 April 1987 (18.04.87), fig. 1. --	1
A	EP, A, 0 484 267 (BARELLA VIGAL) 06 May 1992 (06.05.92), description. --	1
A	US, A, 4 751 731 (D.O'CONNOR) 14 June 1988 (14.06.88), description, fig. 1, 2. --	1, 2

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

## \* Special categories of cited documents :

- 'A' document defining the general state of the art which is not considered to be of particular relevance
- 'E' earlier document but published on or after the international filing date
- 'L' document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- 'O' document referring to an oral disclosure, use, exhibition or other means
- 'P' document published prior to the international filing date but later than the priority date claimed

'T' later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

'X' document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

'Y' document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

'&amp;' document member of the same patent family

Date of the actual completion of the international search

03 November 1994

Date of mailing of the international search report

14.12.94

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentzaan 2  
NL - 2280 HV Rijswijk  
Tel. (+ 31-70) 340-2040, Tx. 31 651 epo nl,  
Fax (+ 31-70) 340-3016

Authorized officer

ZUGAREK e.h.

## INTERNATIONAL SEARCH REPORT

-2-

International Application No.  
PCT/EP 94/02682

## C(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP, A, 0 330 805 (L.CAVINI) 06 September 1989 (06.09.89), fig. 1-3. -----	1, 2

**ANHANG**

zum internationalen Recherchenbericht über die internationale Patentanmeldung Nr.

**ANNEX**

to the International Search Report to the International Patent Application No.

**ANNEXE**

au rapport de recherche international relatif à la demande de brevet international n°

PCT/EP 94/02682 SAE 95910

In diesem Anhang sind die Mitglieder der Patentfamilien der im obengenannten internationalen Recherchenbericht angeführten Patentdokumente angegeben. Diese Angaben dienen nur zur Unter-richtung und erfolgen ohne Gewähr.

This Annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The Office is in no way liable for these particulars which are given merely for the purpose of information.

La présente annexe indique les membres de la famille de brevets relatifs aux documents de brevets cités dans le rapport de recherche international visée ci-dessus. Les renseigne-ments fournis sont donnés à titre indica-tif et n'engagent pas la responsabilité de l'Office.

In Recherchenbericht angeführtes Patentdokument Patent document cited in search report Document de brevet cité dans le rapport de recherche	Datum der Veröffentlichung Publication date Date de publication	Mitglied(er) der Patentfamilie Patent family member(s) Membre(s) de la famille de brevets	Datum der Veröffentlichung Publication date Date de publication
US A 4876715	24-10-89	keine - none - rien	
FR A1 2589304	30-04-87	keine - none - rien	
EP A1 484267	06-05-92	keine - none - rien	
US A 4751731	14-06-88	keine - none - rien	
EP A1 330805	06-09-89	keine - none - rien	